

SEQUENCE LISTING



<110> Landry, Donald W

<120> ANTI-COCAINE CATALYTIC ANTIBODY

<130> 0575/51400-B

<140> 09/940,727

<141> 2001-08-28

<150> 09/214,095

<151> 1998-12-28

<150> PCT/US97/10965

C1 <151> 1997-06-25

<150> 08/672,345

<151> 1996-06-25

<160> 121

<170> PatentIn version 3.1

<210> 1

<211> 109

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Ala Val Val Thr Gln Glu Ser Ala Leu Thr Thr Trp Pro Gly Glu Thr  
1 5 10 15

Val Thr Leu Thr Cys Arg Ser Ser Thr Gly Thr Ile Thr Thr Ser Asn  
20 25 30

Tyr Ala Asn Trp Val Gln Glu Lys Pro Asp His Leu Phe Ser Gly Leu  
35 40 45

Ile Gly Ile Asn Asn Asn Arg Pro Pro Gly Val Pro Ala Arg Phe Ser  
50 55 60

Gly Ser Leu Ile Gly Asp Lys Ala Val Leu Thr Ile Thr Gly Ala Gln  
65 70 75 80

Thr Glu Asp Glu Ala Ile Tyr Phe Cys Ala Leu Trp Tyr Ser Asn His  
85 90 95

Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly  
100 105

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<211> 109

<212> PRT

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Ala Val Val Thr Gln Glu Ser Ala Leu Thr Thr Arg Pro Gly Glu Thr  
1 5 10 15

Val Thr Leu Thr Cys Arg Ser Ser Ala Gly Thr Ile Thr Thr Ser Asn  
20 25 30

Tyr Ala Asn Trp Val Gln Glu Lys Pro Asp His Leu Phe Ser Gly Leu  
35 40 45

Ile Gly Val Asn Asn Asn Arg Pro Pro Gly Val Pro Ala Arg Phe Ser  
50 55 60

Gly Ser Leu Ile Gly Asp Thr Ala Ala Leu Thr Ile Thr Gly Ala Gln  
65 70 75 80

Thr Glu Asp Glu Ala Ile Tyr Phe Cys Ala Leu Trp Tyr Ser Asn His  
85 90 95

Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly  
100 105

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Ala Val Val Thr Gln Glu Ser Ala Leu Thr Thr Ser Pro Gly Glu Thr  
1 5 10 15

Val Thr Leu Thr Cys Arg Ser Ser Thr Gly Thr Ile Thr Ser Asp Asn  
20 25 30

Tyr Ala Asn Trp Val Gln Glu Lys Pro Asp His Leu Phe Ser Gly Leu  
35 40 45

Ile Gly Val Asn Asn Tyr Arg Pro Pro Gly Val Pro Ala Arg Phe Ser  
50 55 60

Gly Ser Leu Thr Gly Asp Lys Ala Val Leu Thr Ile Thr Gly Ala Gln  
65 70 75 80

Thr Glu Asp Glu Ala Ile Tyr Phe Cys Ala Leu Trp Tyr Ser Asn His  
85 90 95

Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly  
100 105

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<211> 98

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Thr Arg Ala Gly Glu Thr Val Thr Thr Cys Arg Ser Ser Ser Gly Thr  
1 5 10 15

Ile Thr Ala Asn Asn Tyr Gly Ser Trp Val Gln Glu Lys Pro Asp His  
20 25 30

Leu Phe Thr Gly Leu Ile Gly Val Ser Asn Asn Arg Gly Pro Gly Val  
35 40 45

Pro Ala Arg Phe Ser Gly Ser Leu Ile Gly Asp Lys Ala Val Leu Thr  
50 55 60

Ile Thr Gly Gly Gln Thr Glu Asp Glu Ala Ile Tyr Phe Cys Ala Leu  
65 70 75 80

Trp Asn Ser Asn His Phe Val Phe Gly Gly Gly Thr Lys Leu Thr Val  
85 90 95

Leu Gly

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<211> 113

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Asp Ile Val Met Thr Gln Asp Glu Leu Ser Asn Pro Val Thr Ser Gly  
1 5 10 15

Glu Ser Val Ser Ile Ser Cys Arg Ser Ser Arg Ser Leu Leu Tyr Arg  
20 25 30

Asp Gly Lys Thr Tyr Leu Asn Trp Phe Leu Gln Arg Pro Gly Arg Ser  
35 40 45

Pro Gln Leu Leu Ile Tyr Leu Met Ser Thr Arg Ser Ser Gly Val Ser  
50 55 60

Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Glu Ile  
65 70 75 80

Ser Arg Val Lys Ala Glu Asp Val Gly Val Tyr Tyr Cys Gln His Phe  
85 90 95

Val Asp Tyr Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys  
100 105 110

Arg

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Asp Met Val Met Thr Gln Asp Glu Leu Ser Asn Pro Val Thr Ser Gly  
1 5 10 15

Glu Ser Val Ser Ile Ser Cys Arg Ser Ser Arg Ser Leu Leu Tyr Arg  
20 25 30

Asp Gly Lys Thr Tyr Leu Asn Trp Phe Leu Gln Arg Pro Gly Arg Ser  
35 40 45

Pro Gln Leu Leu Ile Tyr Leu Met Ser Thr Arg Ala Ser Gly Val Ser  
50 55 60

Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Glu Ile  
65 70 75 80

Ser Arg Val Lys Ala Glu Asp Val Gly Val Tyr Tyr Cys Gln His Phe

85

90

95

Glu Asp Tyr Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys  
 100 105 110

Arg

&lt;210&gt; 7

&lt;211&gt; 113

&lt;212&gt; PRT

&lt;213&gt; mouse

&lt;400&gt; 7

Asp Met Val Met Thr Gln Asp Glu Leu Ser Asn Pro Val Thr Ser Gly  
 1 5 10 15

Glu Ser Val Ser Ile Ser Cys Arg Ser Ser Arg Ser Leu Leu Tyr Arg  
 20 25 30

Asp Gly Lys Thr Tyr Leu Asn Trp Phe Leu Gln Arg Pro Gly Arg Ser  
 35 40 45

Pro Gln Leu Leu Ile Tyr Leu Met Ser Thr Arg Ala Ser Gly Val Ser  
 50 55 60

Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Glu Ile  
 65 70 75 80

Ser Arg Val Lys Ala Glu Asp Val Gly Val Tyr Tyr Cys Gln His Phe  
 85 90 95

Val Asp Tyr Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys  
 100 105 110

Arg

&lt;210&gt; 8

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Asp Ile Val Ile Thr Gln Asp Glu Leu Ser Asn Pro Val Thr Ser Gly  
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Glu Ser Val Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu Tyr Glu  
20 25 30

Asp Gly Lys Thr Tyr Leu Asn Trp Phe Leu Gln Arg Pro Gly Gln Ser  
35 40 45

Pro His Leu Leu Ile Tyr Leu Met Ser Thr Arg Ala Ser Gly Val Ser  
50 55 60

Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Glu Ile  
65 70 75 80

Ser Arg Val Lys Ala Glu Asp Val Gly Ala Tyr Tyr Cys Gln Gln Phe  
85 90 95

Val Glu Tyr Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Arg  
100 105 110

Arg

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Glu Leu Val Met Thr Gln Ser Pro Leu Thr Leu Ser Val Thr Ile Gly  
1 5 10 15

Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser  
20 25 30

Asp Gly Lys Thr Tyr Leu Asn Trp Phe Phe Gln Arg Pro Gly Gln Ser  
35 40 45

Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro  
50 55 60

Asp Arg Phe Thr Gly Ser Gly Ser Gly Lys Asp Phe Thr Leu Lys Glu  
65 70 75 80

Ile Ser Arg Val Glu Ala Glu Asp Leu Gly Leu Tyr Tyr Cys Val Gln  
85 90 95

Gly Tyr Thr Phe Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu  
100 105 110

C1 Lys Arg

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<211> 117

<212> PRT

<213> mouse

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Asp Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gln  
1 5 10 15

Ser Leu Ser Leu Thr Cys Thr Val Thr Gly Asn Ser Ile Thr Ser Asp  
20 25 30

Tyr Ala Trp Thr Trp Ile Arg Gln Phe Pro Gly Asn Lys Leu Glu Trp  
35 40 45

Met Gly Tyr Ile Arg His Ile Tyr Gly Thr Arg Tyr Asn Pro Ser Leu  
50 55 60



Ile Ser Arg Ile Ser Ile Thr Arg Asp Thr Ser Lys Asn Gln Phe Phe  
65 70 75 80

Leu Gln Leu Asp Ser Val Thr Ala Glu Asp Thr Ala Thr Tyr Tyr Cys  
85 90 95

Val Arg Tyr His Tyr Tyr Gly Ser Ala Tyr Trp Gly Gln Gly Thr Leu  
100 105 110

Val Thr Val Ser Ala  
115

<210> 11

<211> 117

<212> PRT

<213> mouse

C1 <400> 11

Asp Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gln  
1 5 10 15

Ser Leu Ser Leu Thr Cys Thr Val Thr Gly Asn Ser Ile Thr Ser Asp  
20 25 30

Tyr Ala Trp Thr Trp Ile Arg Gln Phe Pro Gly Asn Lys Leu Glu Trp  
35 40 45

Met Gly Tyr Ile Arg His Ile Tyr Gly Thr Arg Tyr Asn Pro Ser Leu  
50 55 60

Ile Ser Arg Ile Ser Ile Thr Arg Asp Thr Ser Lys Asn Gln Phe Phe  
65 70 75 80

Leu Gln Leu Asp Ser Val Thr Ala Glu Asp Thr Ala Thr Tyr Tyr Cys  
85 90 95

Val Arg Tyr His Tyr Tyr Gly Ser Ala Tyr Trp Gly Gln Gly Thr Leu  
100 105 110

Val Thr Val Ser Ala

115

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<211> 117

<212> PRT

<213> mouse

<400> 12

Asp Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gln  
1 5 10 15

Ser Leu Ser Leu Thr Cys Thr Val Thr Gly Asn Ser Ile Thr Ser Asp  
20 25 30

C1 Tyr Ala Trp Thr Trp Ile Arg Lys Phe Pro Gly Asn Lys Leu Glu Trp  
35 40 45

Leu Gly Tyr Ile Arg His Ile Tyr Gly Thr Arg Tyr Asn Pro Ser Leu  
50 55 60

Ile Ser Arg Ile Ser Ile Thr Arg Asp Thr Ser Lys Asn Gln Phe Phe  
65 70 75 80

Leu Gln Leu Asp Ser Val Thr Ala Glu Asp Thr Ala Thr Tyr Tyr Cys  
85 90 95

Val Arg Tyr His Tyr Tyr Gly Ser Ala Tyr Trp Gly Gln Gly Thr Leu  
100 105 110

Val Thr Val Ser Ala  
115

<210> 13

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<212> PRT

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<400> 13

Asp Val Gln Leu Gln Glu Ser Gly Pro Glu Leu Val Lys Pro Ser Gln  
1 5 10 15

Ser Leu Ser Leu Thr Cys Thr Val Thr Gly Tyr Ser Ile Thr Ser Asp  
20 25 30

Tyr Ala Trp Asn Trp Ile Arg Gln Phe Pro Gly Asn Arg Leu Glu Trp  
35 40 45

Met Gly Tyr Ile Arg Tyr Ser Gly Ile Thr Arg Tyr Asn Pro Ser Leu  
50 55 60

Lys Ser Arg Ile Ser Ile Thr Arg Asp Thr Ser Lys Asn Lys Phe Phe  
65 70 75 80

Cl Leu Gln Leu Asn Ser Val Thr Thr Glu Asp Thr Ala Thr Tyr Tyr Cys  
85 90 95

Val Arg Ile His Tyr Tyr Gly Tyr Gly Asn Trp Gly Gln Gly Thr Thr  
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Leu Thr Gly Leu Pro  
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<211> 116

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<400> 14

Asp Val Gln Leu Gln Glu Ser Gly Pro Glu Leu Val Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Pro Phe Thr Asp Tyr  
20 25 30

Asn Met Tyr Trp Val Lys Gln Ser His Gly Lys Ser Leu Glu Trp Ile  
35 40 45

Gly Tyr Ile Asp Pro Ser Asn Gly Gly Ile Phe Tyr Asn Gln Lys Phe  
50 55 60

Lys Gly Arg Ala Thr Leu Thr Val Asp Lys Ser Ser Asn Thr Ala Phe  
65 70 75 80

Met His Leu Asn Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Gly Gly Gly Leu Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val  
100 105 110

Thr Val Ser Glu  
115

<210> 15

<211> 116

<212> PRT

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<400> 15

Glu Ile His Leu Gln Glu Ser Gly Glu Leu Val Lys Pro Gly Ala Ser  
1 5 10 15

Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Ser Phe Thr Ser Asp Tyr  
20 25 30

Asn Met Tyr Trp Val Lys Gln Ser His Gly Lys Ser Leu Glu Trp Ile  
35 40 45

Gly Tyr Ile Asp Pro His Asn Gly Gly Ile Phe Tyr Asn Gln Lys Phe  
50 55 60

Lys Gly Arg Ala Thr Leu Thr Val Asp Lys Ser Ser Asn Thr Ala Phe  
65 70 75 80

Met His Leu Asn Val Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Gly Gly Gly Leu Phe Ala Tyr Trp Gly Arg Gly Thr Leu Val  
100 105 110

Thr Val Ser Ala  
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<212> PRT

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<400> 16

C1  
Glu Val Gln Leu Gln Glu Ser Gly Pro Glu Leu Val Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Ser Phe Asp Tyr Asn  
20 25 30

Met Tyr Trp Val Lys Gln Asn His Gly Glu Ser Leu Glu Trp Ile Ala  
35 40 45

Tyr Ile Asp Pro Ser Asn Gly Asp Thr Arg Tyr Asn Gln Lys Phe Gln  
50 55 60

Gly Lys Ala Thr Val Thr Leu Asp Lys Ser Ser Ser Thr Ala Phe Met  
65 70 75 80

His Leu Asn Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys Ala  
85 90 95

Arg Gly Gly Gly Leu Phe Ala Phe Trp Gly Gln Gly Thr Leu Val Thr  
100 105 110

Val Ser Ala  
115

<210> 17

<211> 116

<212> PRT

<213> mouse

<400> 17

Val Gln Leu Leu Glu Ser Gly Ala Glu Leu Val Met Pro Gly Ala Ser  
1 5 10 15

Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp His Trp  
20 25 30

Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile Gly  
35 40 45

CI Thr Ile Asp Leu Ser Asp Thr Tyr Thr Gly Tyr Asn Gln Asn Phe Lys  
50 55 60

Gly Arg Ala Thr Leu Thr Leu Asp Glu Ser Ser Asn Thr Ala Tyr Met  
65 70 75 80

Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys Ser  
85 90 95

Arg Arg Gly Tyr Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr Thr Leu  
100 105 110

Thr Val Ser Ser  
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<211> 115

<212> PRT

<213> mouse

<400> 18

Val Gln Leu Leu Glu Ser Gly Ala Glu Leu Val Lys Pro Gly Ala Ser  
1 5 10 15

Val Glu Leu Ser Cys Arg Thr Ser Gly Tyr Thr Phe Thr Thr Tyr Tyr  
20 25 30

Ile Tyr Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile Gly  
35 40 45

Gly Met Asn Pro Gly Asn Gly Val Thr Tyr Phe Asn Glu Lys Phe Lys  
50 55 60

Asn Arg Ala Thr Leu Thr Val Asp Arg Ser Ser Ser Ile Ala Tyr Met  
65 70 75 80

Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys Thr  
85 90 95

Arg Val Gly Asn Leu Phe Ala Tyr Trp Gly Arg Gly Thr Leu Val Thr  
100 105 110

Val Ser Ala  
115

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<212> PRT

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<400> 19

Arg Ser Ser Arg Ser Leu Leu Tyr Arg Asp Gly Lys Thr Tyr Leu Asn  
1 5 10 15

<210> 20

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<212> PRT

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<400> 20

Leu Met Ser Thr Arg Ser Ser  
1 5

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<400> 21

Gln His Phe Val Asp Tyr Pro Phe Thr  
1 5

<210> 22

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<212> PRT

<213> mouse

<400> 22

Arg Ser Ser Lys Ser Leu Leu Tyr Glu Asp Gly Lys Thr Tyr Leu Asn  
1 5 10 15

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<211> 7

<212> PRT

<213> mouse

<400> 23

Leu Met Ser Thr Arg Ala Ser  
1 5

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<211> 9

<212> PRT

<213> mouse



<400> 24

Gln His Phe Glu Asp Tyr Pro Phe Thr  
1 5

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<212> PRT

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Arg Ser Ser Lys Ser Leu Leu Tyr Glu Asp Gly Lys Thr Tyr Leu Asn  
1 5 10 15

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<211> 7

<212> PRT

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<400> 26

Leu Met Ser Thr Arg Ala Ser  
1 5

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<212> PRT

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<400> 27

Gln Gln Phe Val Glu Tyr Pro Phe Thr  
1 5

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<212> PRT

<213> mouse

<400> 28

Arg Ser Ser Arg Ser Leu Leu Tyr Arg Asp Gly Lys Thr Tyr Leu Asn  
1 5 10 15

<210> 29

<211> 7

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C1  
<400> 29

Leu Met Ser Thr Arg Ala Ser  
1 5

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Gln His Phe Glu Asp Tyr Pro Phe Thr  
1 5

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Arg Ser Ser Thr Gly Thr Ile Thr Thr Ser Asn Tyr Ala Asn  
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Ile Asn Asn Asn Arg Pro Pro  
1 5

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<212> PRT

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Ala Leu Trp Tyr Ser Asn His Trp Val  
1 5

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Arg Ser Ser Ala Gly Thr Ile Thr Thr Ser Asn Tyr Ala Asn  
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<212> PRT

<213> mouse

<400> 35

Val Asn Asn Asn Arg Pro Pro  
1 5

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<211> 9

<212> PRT

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<400> 36

Ala Leu Trp Tyr Ser Asn His Trp Val  
1 5

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<400> 37

Arg Ser Ser Thr Gly Thr Ile Thr Ser Asp Asn Tyr Ala Asn  
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Val Asn Asn Tyr Arg Pro Pro  
1 5

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- Ala Leu Trp Tyr Ser Asn His Trp Val  
1 5

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Arg Ser Ser Ser Gly Thr Ile Thr Ala Asn Asn Tyr Gly Ser  
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Val Ser Asn Asn Arg Gly Pro  
1 5

<210> 42

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<212> PRT

<213> mouse

<400> 42

Ala Leu Trp Asn Ser Asn His Phe Val  
1 5

<210> 43

<211> 16

<212> PRT

<213> mouse

C1  
<400> 43

Lys Ser Ser Gln Ser Leu Leu Tyr Ser Asp Gly Lys Thr Tyr Leu Asn  
1 5 10 15

<210> 44

<211> 7

<212> PRT

<213> mouse

<400> 44

Leu Val Ser Lys Leu Asp Ser  
1 5

<210> 45

<211> 9

<212> PRT

<213> mouse

<400> 45

Val Gln Gly Tyr Thr Phe Pro Leu Thr  
1 5

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<211> 6

<212> PRT

<213> mouse

<400> 46

Ser Asp Tyr Ala Trp Thr  
1 5

<210> 47

<211> 16

<212> PRT

<213> mouse

<400> 47

Tyr Ile Arg His Ile Tyr Gly Thr Arg Tyr Asn Pro Ser Leu Ile Ser  
1 5 10 15

<210> 48

<211> 8

<212> PRT

<213> mouse

<400> 48

Tyr His Tyr Tyr Gly Ser Ala Tyr  
1 5

<210> 49

<211> 6

<212> PRT

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<400> 49

Ser Asp Tyr Ala Trp Thr  
1 5

<210> 50

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C1 <400> 50

Tyr Ile Arg His Ile Tyr Gly Thr Arg Tyr Asn Pro Ser Leu Ile Ser  
1 5 10 15

<210> 51

<211> 8

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<400> 51

Tyr His Tyr Tyr Gly Ser Ala Tyr  
1 5

<210> 52

<211> 6

<212> PRT

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<400> 52

Ser Asp Tyr Ala Trp Asn  
1 5



<210> 53

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<400> 53

Tyr Ile Arg Tyr Ser Gly Ile Thr Arg Tyr Asn Pro Ser Leu Lys Ser  
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<400> 54

Ile His Tyr Tyr Gly Tyr Gly Asn  
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<400> 55

Ser Asp Tyr Ala Trp Thr  
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Tyr Ile Arg His Ile Tyr Gly Thr Arg Tyr Asn Pro Ser Leu Ile Ser  
1 5 10 15

<210> 57

<211> 8

<212> PRT

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<400> 57

41 Tyr His Tyr Tyr Gly Ser Ala Tyr  
1 5

<210> 58

<211> 5

<212> PRT

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<400> 58

Asp Tyr Asn Met Tyr  
1 5

<210> 59

<211> 17

<212> PRT

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<400> 59

Tyr Ile Asp Pro Ser Asn Gly Gly Ile Phe Tyr Asn Gln Lys Phe Lys  
1 5 10 15

Gly

<210> 60

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<212> PRT

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<400> 60

Gly Gly Gly Leu Phe Ala Tyr  
1 5

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<400> 61

Asp Tyr Asn Met Tyr  
1 5

<210> 62

<211> 17

<212> PRT

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<400> 62

Tyr Ile Asp Pro His Asn Gly Gly Ile Phe Tyr Asn Gln Lys Phe Lys  
1 5 10 15

Gly

<210> 63

<211> 7

<212> PRT

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<400> 63

Gly Gly Gly Leu Phe Ala Tyr  
1 5

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Asp Tyr Asn Met Tyr  
1 5

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Tyr Ile Asp Pro Ser Asn Gly Asp Thr Phe Tyr Asn Gln Lys Phe Gln  
1 5 10 15

Gly

<210> 66

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<213> mouse

<400> 66

Gly Gly Gly Leu Phe Ala Phe  
1 5

<210> 67

<211> 5

<212> PRT

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<400> 67

Thr Tyr Tyr Ile Tyr  
1 5

<210> 68

<211> 17

<212> PRT

<213> mouse

<400> 68

Gly Met Asn Pro Gly Asn Gly Val Thr Tyr Phe Asn Glu Lys Phe Lys  
1 5 10 15

Asn

<210> 69

<211> 7

<212> PRT

<213> mouse

<400> 69

Val Gly Asn Leu Phe Ala Tyr

1

5

<210> 70

<211> 5

<212> PRT

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<400> 70

Asp His Trp Met His  
1 5

<210> 71

<211> 17

<212> PRT

<213> mouse

<400> 71

Thr Ile Asp Leu Ser Asp Thr Tyr Thr Gly Tyr Asn Gln Asn Phe Lys  
1 5 10 15

Gly

<210> 72

<211> 5

<212> PRT

<213> mouse

<400> 72

Arg Gly Phe Asp Tyr  
1 5

<210> 73

<211> 14

<212> PRT

<213> mouse

<220>

<221> MISC\_FEATURE

<222> (4)..(4)

<223> any amino acid

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<223> any amino acid

<220>

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<222> (9)..(9)

<223> any amino acid

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Arg Ser Ser Xaa Gly Thr Ile Thr Xaa Xaa Asn Tyr Ala Asn  
1 5 10

<210> 74

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<223> any amino acid

<400> 74

Xaa Asn Asn Tyr Arg Pro Pro  
1 5

<210> 75

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<400> 75

Ala Leu Trp Tyr Ser Asn His Trp Val  
1 5

<210> 76

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<400> 76

Asp Tyr Asn Met Tyr  
1 5

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C1  
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<400> 77

Tyr	Ile	Asp	Pro	Xaa	Asn	Gly	Xaa	Xaa	Phe	Tyr	Asn	Gln	Lys	Phe	Xaa
1				5					10					15	

Gly

<210> 78

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<400> 78

Gly Gly Gly Leu Phe Ala Xaa  
1 5

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Arg Ser Ser Xaa Ser Leu Leu Tyr Xaa Asp Gly Lys Thr Tyr Leu Asn  
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Leu Met Ser Thr Arg Xaa Ser  
1 5

C1

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<221> MISC\_FEATURE  
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<223> any amino acid

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<222> (4)..(4)  
<223> any amino acid

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<221> MISC\_FEATURE  
<222> (5)..(5)

<223> any amino acid

<400> 81

Gln Xaa Phe Xaa Xaa Tyr Pro Phe Thr  
1 5

<210> 82

<211> 6

<212> PRT

<213> mouse

C1  
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<222> (6)..(6)

<223> any amino acid

<400> 82

Ser Asp Tyr Ala Trp Xaa  
1 5

<210> 83

<211> 16

<212> PRT

<213> mouse

<220>

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<222> (4)..(4)

<223> any amino acid

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<222> (5)..(5)

<223> any amino acid

<400> 83

Tyr Ile Arg Xaa Xaa Xaa Xaa Thr Arg Tyr Asn Pro Ser Leu Xaa Ser  
1 5 10 15

<210> 84

<211> 8

<212> PRT

<213> mouse

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<223> any amino acid

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<222> (7)..(7)  
<223> any amino acid

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<221> MISC\_FEATURE  
<222> (8)..(8)  
<223> any amino acid

<400> 84

Xaa His Tyr Tyr Gly Xaa Xaa Xaa  
1 5

<210> 85

<211> 330

<212> DNA

<213> mouse

<400> 85

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60

tattcattca ctgactacaa tatgtactgg gtgaagcaga accatggaga gaggccttgaa 120  
 tggattgcat atattgatcc ttccaatggg gatactttct acaaccagaa attccagggc 180  
 aaggccacag tgactcttga caagtcctcc agtacagcct tcatgcatct caacagcctg 240  
 acatctgagg actctgcagt ctattactgt gcaagagggg ggggcctggt tgctttctgg 300  
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<210> 86

<211> 110

<212> PRT

<213> mouse

<400> 86

Ser Gly Pro Glu Leu Val Lys Pro Gly Ala Ser Val Lys Val Ser Cys  
 1 5 10 15

Lys Ala Ser Gly Tyr Ser Phe Thr Asp Tyr Asn Met Tyr Trp Val Lys  
 20 25 30

Gln Asn His Gly Glu Ser Leu Glu Trp Ile Ala Tyr Ile Asp Pro Ser  
 35 40 45

Asn Gly Asp Thr Phe Tyr Asn Gln Lys Phe Gln Gly Lys Ala Thr Val  
 50 55 60

Thr Leu Asp Lys Ser Ser Ser Thr Ala Phe Met His Leu Asn Ser Leu  
 65 70 75 80

Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys Ala Arg Gly Gly Gly Leu  
 85 90 95

Phe Ala Phe Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala  
 100 105 110

<210> 87

<211> 360

<212> DNA

<213> mouse

<220>

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<222> (16)..(16)

<223> any nucleotide

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<222> (19)..(19)

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C1

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<222> (25)..(25)

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<222> (356)..(356)

<223> any nucleotide

<400> 87

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ggccaagaa aaaccagatc atttattcag tgggtctaata ggtgttaaca acaaccgacc	180
tccaggtggt cctgccagat tctcaggctc cctgattgga gacacggctg ccctcaccat	240
cacaggggca cagactgagg atgaggcaat atatttctgt gctctatggt acagcaacca	300
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<210> 88

<211> 99

<212> PRT

<213> mouse

<400> 88

Thr Arg Pro Gly Glu Thr Val Thr Leu Thr Cys Arg Ser Ser Ala Gly  
1 5 10 15

Thr Ile Thr Thr Ser Asn Tyr Ala Asn Trp Val Gln Glu Lys Pro Asp  
20 25 30

His Leu Phe Ser Gly Leu Ile Gly Val Asn Asn Asn Arg Pro Pro Gly  
35 40 45

Val Pro Ala Arg Phe Ser Gly Ser Leu Ile Gly Asp Thr Ala Ala Leu  
50 55 60

Thr Ile Thr Gly Ala Gln Thr Glu Asp Glu Ala Ile Tyr Phe Cys Ala  
65 70 75 80

Leu Trp Tyr Ser Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr  
85 90 95

Val Leu Gly

<210> 89

<211> 419

<212> DNA

<213> mouse

<400> 89

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ttcactgact acaacatgta ctgggtgaaa cagagccatg gaaagagcct tgagtggatt 180  
 ggatatattg atcctcaciaa tgggtggtatt ttctacaacc agaagttcaa gggcagggcc 240  
 acattgactg ttgacaagtc ctccaacaca gccttcatgc atctcaacag cctgacatct 300  
 gaggactctg cagtctatta ctgtgcaaga gggggggggcc tgtttgctta ctggggccga 360  
 gggactctgg tcaactgtctc tgcagccaaa acgacacccc catctgtcta tccactggc 419

<210> 90

<211> 116

<212> PRT

<213> mouse

<400> 90

Glu Ile His Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala  
 1 5 10 15

Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Ser Phe Thr Asp Tyr  
 20 25 30

Asn Met Tyr Trp Val Lys Gln Ser His Gly Lys Ser Leu Glu Trp Ile  
 35 40 45

Gly Tyr Ile Asp Pro His Asn Gly Gly Ile Phe Tyr Asn Gln Lys Phe  
 50 55 60

Lys Gly Arg Ala Thr Leu Thr Val Asp Lys Ser Ser Asn Thr Ala Phe  
 65 70 75 80

Met His Leu Asn Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
 85 90 95

Ala Arg Gly Gly Gly Leu Phe Ala Tyr Trp Gly Arg Gly Thr Leu Val  
 100 105 110

Thr Val Ser Ala  
 115

<210> 91

C1

<211> 360  
<212> DNA  
<213> mouse

<220>  
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<223> any nucleotide

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<222> (25)..(25)  
C1 <223> any nucleotide

<220>  
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<222> (356)..(356)  
<223> any nucleotide

<400> 91  
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ggtccaagaa aaaccagatc atttattcag tggctctgata ggtattaaca acaaccgacc 180  
tccaggtggt cctgccagat tctcaggctc cctgattgga gacaaggctg tcctcaccat 240  
cacaggggca cagactgagg atgaggcaat atatttctgt gctctatggg acagcaacca 300  
ctgggtgttc ggtggaggaa ccaaactgac tgtcctaggc cagcccaagt cttcgncatc 360

<210> 92  
<211> 99  
<212> PRT

<213> mouse

<400> 92

Thr Trp Pro Gly Glu Thr Val Thr Leu Thr Cys Arg Ser Ser Thr Gly  
1 5 10 15

Thr Ile Thr Thr Ser Asn Tyr Ala Asn Trp Val Gln Glu Lys Pro Asp  
20 25 30

His Leu Phe Ser Gly Leu Ile Gly Ile Asn Asn Asn Arg Pro Pro Gly  
35 40 45

Val Pro Ala Arg Phe Ser Gly Ser Leu Ile Gly Asp Lys Ala Val Leu  
50 55 60

CI Thr Ile Thr Gly Ala Gln Thr Glu Asp Glu Ala Ile Tyr Phe Cys Ala  
65 70 75 80

Leu Trp Tyr Ser Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr  
85 90 95

Val Leu Gly

<210> 93

<211> 360

<212> DNA

<213> mouse

<400> 93  
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tggaagagc cttgagtga ttggatatat tgatccttcc aatggtggta ttttttacia 180  
ccagaagttc aagggcaggg ccacattgac tgttgacaag tcctccaaca cagccttcac 240  
gcatctcaac agcctgacat ctgaggactc tgcagtctat tactgtgcaa gagggggggg 300  
cctgtttgct tactggggcc aagggactct ggtcactgtc tctgaagcca aaacgaaacc 360

<210> 94

<211> 110

<212> PRT

<213> mouse

<400> 94

Ser Gly Pro Glu Leu Val Lys Pro Gly Ala Ser Val Lys Leu Ser Cys  
1 5 10 15

Lys Ala Ser Gly Tyr Pro Phe Thr Asp Tyr Asn Met Tyr Trp Val Lys  
20 25 30

Gln Ser His Gly Lys Ser Leu Glu Trp Ile Gly Tyr Ile Asp Pro Ser  
35 40 45

Asn Gly Gly Ile Phe Tyr Asn Gln Lys Phe Lys Gly Arg Ala Thr Leu  
50 55 60

Thr Val Asp Lys Ser Ser Asn Thr Ala Phe Met His Leu Asn Ser Leu  
65 70 75 80

Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys Ala Arg Gly Gly Gly Leu  
85 90 95

Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Glu  
100 105 110

<210> 95

<211> 360

<212> DNA

<213> mouse

<400> 95

aggcggccgc actagtgtgatt gggaattcca cgagggcgagg ggagacagtc acactcactt 60

gtcgctcaag tagtgggact attacagcta ataactatgg cagctgggtc caggaaaagc 120

cagatcattt attcactggg ctaatagggt ttagcaacaa ccgagggtcca ggtgttcctg 180  
ccagattctc aggcctcccta attggagaca aggcgtgtcct caccatcacg ggggggcaga 240  
ctgaggatga ggcaatttat ttctgtgctc tatggaacag caaccatttc gtgttcggtg 300  
gaggaaccaa actgactgtc ctagggcaga ccaagtcttt cggcatcaag caccctgttt 360

<210> 96

<211> 100

<212> PRT

<213> mouse

<400> 96

Thr Arg Ala Gly Glu Thr Val Thr Leu Thr Cys Arg Ser Ser Ser Gly  
1 5 10 15

Thr Ile Thr Ala Asn Asn Tyr Gly Ser Trp Val Gln Glu Lys Pro Asp  
20 25 30

His Leu Phe Thr Gly Leu Ile Gly Val Ser Asn Asn Arg Gly Pro Gly  
35 40 45

Val Pro Ala Arg Phe Ser Gly Ser Leu Ile Gly Asp Lys Ala Val Leu  
50 55 60

Thr Ile Thr Gly Gly Gln Thr Glu Asp Glu Ala Ile Tyr Phe Cys Ala  
65 70 75 80

Leu Trp Asn Ser Asn His Phe Val Phe Gly Gly Gly Thr Lys Leu Thr  
85 90 95

Val Leu Gly Gln  
100

<210> 97

<211> 419

<212> DNA

<213> mouse

<400> 97  
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tcgagtctgg ggctgaactg gtgaagcctg gggcttcagt ggagttgtcc tgcaggactt 120  
ctggctacac cttcaccacc tactatatatt actgggtaaa acagaggcct ggacaaggcc 180  
ttgagtggat tgggggggatg aatcctggca atggtgttac ttacttcaat gaaaaattca 240  
agaacagggc cacactgact gtggacagat cctccagcat tgcctacatg caactcagca 300  
gcctgacatc tgaggactct gcggtctatt actgtacacg ggtgggtaac tctttgctta 360  
ctggggccga gggactctgg tcaactgtctc tgcagccaaa acgacacccc actttctat 419

<210> 98

<211> 115

<212> PRT

<213> mouse

<400> 98

Val Gln Leu Leu Glu Ser Gly Ala Glu Leu Val Lys Pro Gly Ala Ser  
1 5 10 15

Val Glu Leu Ser Cys Arg Thr Ser Gly Tyr Thr Phe Thr Thr Tyr Tyr  
20 25 30

Ile Tyr Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile Gly  
35 40 45

Gly Met Asn Pro Gly Asn Gly Val Thr Tyr Phe Asn Glu Lys Phe Lys  
50 55 60

Asn Arg Ala Thr Leu Thr Val Asp Arg Ser Ser Ser Ile Ala Tyr Met  
65 70 75 80

Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys Thr  
85 90 95

Arg Val Gly Asn Ser Leu Leu Thr Gly Ala Glu Gly Leu Trp Ser Leu  
100 105 110

C1

Ser Leu Gln  
115

<210> 99

<211> 339

<212> DNA

<213> mouse

C1  
<400> 99  
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atctcctgca ggtctagtag gagtctccta tatagggatg ggaagacata cttgaattgg 120  
tttctgcaga gaccaggacg atctcctcaa ctctgatct atttgatgtc caccggttca 180  
tcaggagtct cagaccgggt tagtggcagt gggtcaggaa cagatttcac cctggaaatc 240  
agtagagtga aggctgagga tgtgggtgtg tattactgtc aacactttgt agactatcca 300  
ttcacgttcg gctcggggac aaagttggag ataaaacgg 339

<210> 100

<211> 113

<212> PRT

<213> mouse

<400> 100

Asp Ile Val Met Thr Gln Asp Glu Leu Ser Asn Pro Val Thr Ser Gly  
1 5 10 15

Glu Ser Val Ser Ile Ser Cys Arg Ser Ser Arg Ser Leu Leu Tyr Arg  
20 25 30

Asp Gly Lys Thr Tyr Leu Asn Trp Phe Leu Gln Arg Pro Gly Arg Ser  
35 40 45

Pro Gln Leu Leu Ile Tyr Leu Met Ser Thr Arg Ser Ser Gly Val Ser  
50 55 60



Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Glu Ile  
65 70 75 80

Ser Arg Val Lys Ala Glu Asp Val Gly Val Tyr Tyr Cys Gln His Phe  
85 90 95

Val Asp Tyr Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys  
100 105 110

Arg

<210> 101

<211> 366

<212> DNA

<213> mouse

C1  
<400> 101  
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acctgcactg tcactggcaa ttcaatcacc agtgattatg cctggacctg gatccggcag 120  
tttccaggaa acaaactgga gtggatgggc tacataaggc acatttatgg cactaggtac 180  
aacccttctc tcataagtcg aatctctatc actcgagaca cgtccaagaa ccagttcttc 240  
ctgcagttgg attctgtgac tgctgaggac acagccacat attattgtgt aagatatcat 300  
tactacggtt cggcttactg gggccaaggg actctgggtca ctgtctctgc agccaaaacg 360  
acaccc 366

<210> 102

<211> 122

<212> PRT

<213> mouse

<400> 102

Asp Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gln  
1 5 10 15

Ser Leu Ser Leu Thr Cys Thr Val Thr Gly Asn Ser Ile Thr Ser Asp  
20 25 30

Tyr Ala Trp Thr Trp Ile Arg Gln Phe Pro Gly Asn Lys Leu Glu Trp  
35 40 45

Met Gly Tyr Ile Arg His Ile Tyr Gly Thr Arg Tyr Asn Pro Ser Leu  
50 55 60

Ile Ser Arg Ile Ser Ile Thr Arg Asp Thr Ser Lys Asn Gln Phe Phe  
65 70 75 80

Leu Gln Leu Asp Ser Val Thr Ala Glu Asp Thr Ala Thr Tyr Tyr Cys  
85 90 95

Val Arg Tyr His Tyr Tyr Gly Ser Ala Tyr Trp Gly Gln Gly Thr Leu  
100 105 110

Val Thr Val Ser Ala Ala Lys Thr Thr Pro  
115 120

<210> 103

<211> 368

<212> DNA

<213> mouse

<400> 103

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tttctgcaga gaccaggacg atctcctcaa ctctgatct atttgatgtc caccctgca 180  
tcaggagtct cagaccggtt tagtggcagt gggtcaggaa cagatttcac cctggaaatc 240  
agtagagtga aggctgagga tgtgggtgtg tattactttc aacactttga agactatcca 300  
ttcacgttcg gctcggggac aaaattggag ataaaacggg ctgatgctgc accaactgta 360  
tccatctt 368

<210> 104

<211> 113

<212> PRT

<213> mouse

<400> 104

Asp Met Val Met Thr Gln Asp Glu Leu Ser Asn Pro Val Thr Ser Gly  
1 5 10 15

Glu Ser Val Ser Ile Ser Cys Arg Ser Ser Arg Ser Leu Leu Tyr Arg  
20 25 30

Asp Gly Lys Thr Tyr Leu Asn Trp Phe Leu Gln Arg Pro Gly Arg Ser  
35 40 45

Pro Gln Leu Leu Ile Tyr Leu Met Ser Thr Arg Ala Ser Gly Val Ser  
50 55 60

Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Glu Ile  
65 70 75 80

Ser Arg Val Lys Ala Glu Asp Val Gly Val Tyr Tyr Phe Gln His Phe  
85 90 95

Glu Asp Tyr Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys  
100 105 110

Arg

<210> 105

<211> 366

<212> DNA

<213> mouse

<400> 105

gacgtgcagt tgcaggagtc gggacctggc ctggtgaaac cttctcagtc tctgtccctc 60

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tttccaggaa acaaactgga gtggatgggc tacataaggc acatttatgg cactaggtac 180  
aacccttctc tcataagtcg aatctctatc actcgagaca cgtccaagaa ccagttcttc 240  
ctgcagttgg attctgtgac tgctgaggac acagccacat attattgtgt aagatatcat 300  
tactacggtt cggcttactg gggccaaggg actctgggtca ctgtctctgc agccaaaacg 360  
acaccc 366

<210> 106

<211> 122

<212> PRT

<213> mouse

<400> 106

Asp Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gln  
1 5 10 15

Ser Leu Ser Leu Thr Cys Thr Val Thr Gly Asn Ser Ile Thr Ser Asp  
20 25 30

Tyr Ala Trp Thr Trp Ile Arg Gln Phe Pro Gly Asn Lys Leu Glu Trp  
35 40 45

Met Gly Tyr Ile Arg His Ile Tyr Gly Thr Arg Tyr Asn Pro Ser Leu  
50 55 60

Ile Ser Arg Ile Ser Ile Thr Arg Asp Thr Ser Lys Asn Gln Phe Phe  
65 70 75 80

Leu Gln Leu Asp Ser Val Thr Ala Glu Asp Thr Ala Thr Tyr Tyr Cys  
85 90 95

Val Arg Tyr His Tyr Tyr Gly Ser Ala Tyr Trp Gly Gln Gly Thr Leu  
100 105 110

Val Thr Val Ser Ala Ala Lys Thr Thr Pro  
115 120

<210> 107

<211> 368

<212> DNA

<213> mouse

<400> 107

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tttctgcaga gaccaggaca atctcctcac ctctgatct atttgatgtc caccctgca 180  
tcaggagtct cagaccggtt tagtggcagt gggtcaggaa cagatttcac cctggaaatc 240  
agtagagtga aggctgagga tgtgggtgcg tattactgtc aacaatttgt agagtatcca 300  
ttcacgttcg gctcggggac aaagttggaa ataagacggg ttgatgccgc accaactgta 360  
tccatctt 368

C1 <210> 108

<211> 113

<212> PRT

<213> mouse

<400> 108

Asp Met Val Met Thr Gln Asp Glu Leu Ser Asn Pro Val Thr Ser Gly  
1 5 10 15

Glu Ser Val Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu Tyr Glu  
20 25 30

Asp Gly Lys Thr Tyr Leu Asn Trp Phe Leu Gln Arg Pro Gly Gln Ser  
35 40 45

Pro His Leu Leu Ile Tyr Leu Met Ser Thr Arg Ala Ser Gly Val Ser  
50 55 60

Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Glu Ile  
65 70 75 80

Ser Arg Val Lys Ala Glu Asp Val Gly Ala Tyr Tyr Cys Gln Gln Phe

Val Glu Tyr Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Arg  
100 105 110

Arg

<210> 109

<211> 420

<212> DNA

<213> mouse

<220>

C1 <221> misc\_feature

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<223> any nucleotide

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<222> (31)..(31)

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<222> (37)..(37)

<223> any nucleotide

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<221> misc\_feature

<222> (40)..(40)

<223> any nucleotide

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<221> misc\_feature

<222> (49)..(49)

<223> any nucleotide

C1  
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<221> misc\_feature

<222> (56)..(56)

<223> any nucleotide

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cagtgattat gcctggaact ggatccggca gtttccagga aacagactgg agtggatggg 180  
ctacataagg tacagtggta tcactaggta caacccatct ctcaaaagtc gaatctctat 240  
cactcgagac acatccaaga acaagttctt cctgcagtta aattctgtga ctactgagga 300  
cacagccact tattactgtg taagaattca ttactacggc tacggcaact gggggcaagg 360  
caccactctc acaggtcttc ctcaagagtc tgggaagaaa tcccacccat cttccccact 420

<210> 110

<211> 108

<212> PRT

<213> mouse

<400> 110

Glu Leu Val Lys Pro Ser Gln Ser Leu Ser Leu Thr Cys Thr Val Thr  
1 5 10 15

Gly Tyr Ser Ile Thr Ser Asp Tyr Ala Trp Asn Trp Ile Arg Gln Phe  
20 25 30

Pro Gly Asn Arg Leu Glu Trp Met Gly Tyr Ile Arg Tyr Ser Gly Ile  
35 40 45

Thr Arg Tyr Asn Pro Ser Leu Lys Ser Arg Ile Ser Ile Thr Arg Asp  
50 55 60

Thr Ser Lys Asn Lys Phe Phe Leu Gln Leu Asn Ser Val Thr Thr Glu  
65 70 75 80

Asp Thr Ala Thr Tyr Tyr Cys Val Arg Ile His Tyr Tyr Gly Tyr Gly  
85 90 95

Asn Trp Gly Gln Gly Thr Thr Leu Thr Gly Leu Pro  
100 105

<210> 111

<211> 420

<212> DNA

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<220>

<221> misc\_feature

<222> (1)..(1)

<223> any nucleotide

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<222> (404)..(404)

<223> any nucleotide

<400> 111

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caggtctagt aggagtctcc tatataggga tgggaagaca tacttgaatt ggtttctgca 180  
gagaccagga cgatctcctc aactcctgat ctatttgatg tccacccgtg catcaggagt 240  
ctcagaccgg tttagtggca gtgggtcagg aacagatttc accctggaaa tcagtagagt 300  
gaaggctgag gatgtgggtg tgtattactg tcaacacttt gtagactatc cattcacgtt 360  
cggctcgggg acaaagttgg agataaaaacg gggtgatgct gnancaactg tatccatctt 420

<210> 112

<211> 113

<212> PRT

<213> mouse

<400> 112

Asp Met Val Met Thr Gln Asp Glu Leu Ser Asn Pro Val Thr Ser Gly  
1 5 10 15

Glu Ser Val Ser Ile Ser Cys Arg Ser Ser Arg Ser Leu Leu Tyr Arg  
20 25 30

Asp Gly Lys Thr Tyr Leu Asn Trp Phe Leu Gln Arg Pro Gly Arg Ser  
35 40 45

Pro Gln Leu Leu Ile Tyr Leu Met Ser Thr Arg Ala Ser Gly Val Ser  
50 55 60

Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Glu Ile  
65 70 75 80

Ser Arg Val Lys Ala Glu Asp Val Gly Val Tyr Tyr Cys Gln His Phe  
85 90 95

Val Asp Tyr Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys  
100 105 110

Arg

<210> 113

<211> 419

<212> DNA

<213> mouse

<220>

<221> misc\_feature

<222> (381)..(381)

<223> any nucleotide

<400> 113

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ttctcagtct ctgtccctca cctgcactgt cactggtaat tcaatcacca gtgattatgc 120

ctggacctgg atccggaagt ttccaggaaa caaactggag tggttgggct acataaggca 180

catttatggc actaggtaca acccttctct cataagtcga atctctatca ctcgagacac 240

gtccaagaac cagttcttcc tgcagttgga ttctgtgact gctgaggaca cagccacata 300  
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<210> 114

<211> 117

<212> PRT

<213> mouse

<400> 114

Asp Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gln  
 1 5 10 15

Ser Leu Ser Leu Thr Cys Thr Val Thr Gly Asn Ser Ile Thr Ser Asp  
 20 25 30

Tyr Ala Trp Thr Trp Ile Arg Lys Phe Pro Gly Asn Lys Leu Glu Trp  
 35 40 45

Leu Gly Tyr Ile Arg His Ile Tyr Gly Thr Arg Tyr Asn Pro Ser Leu  
 50 55 60

Ile Ser Arg Ile Ser Ile Thr Arg Asp Thr Ser Lys Asn Gln Phe Phe  
 65 70 75 80

Leu Gln Leu Asp Ser Val Thr Ala Glu Asp Thr Ala Thr Tyr Tyr Cys  
 85 90 95

Val Arg Tyr His Tyr Tyr Gly Ser Ala Tyr Trp Gly Gln Gly Thr Leu  
 100 105 110

Val Thr Val Ser Ala  
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<210> 115

<211> 420

<212> DNA

<213> mouse

<220>

<221> misc\_feature

<222> (3)..(3)

<223> any nucleotide

<220>

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<222> (11)..(11)

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C1

<220>

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<222> (27)..(27)

<223> any nucleotide

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<222> (43)..(43)

<223> any nucleotide

<400> 115

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tcttgcaagt caagtcagag cctcttatat agtgatggaa aaacctatctt gaattgggttc	180
ttccagagggc caggccagtc tccaaagcgc ctaatctatc tgggtgtctaa actggactct	240
ggagtcacctg acaggttcac tggcagtgga tcaggaaaag attttacact gaaaatcagc	300
agagtggagg ctgaggattt gggactttat tactgcggtc aagggtacac atttccgctc	360

acgttcggtg ctgggaccaa gctggagctg aaacgggtga tgctgaccaa cttgtttcat 420

<210> 116

<211> 113

<212> PRT

<213> mouse

<400> 116

Glu Leu Val Met Thr Gln Ser Pro Leu Thr Leu Ser Val Thr Ile Gly  
1 5 10 15

Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser  
20 25 30

Asp Gly Lys Thr Tyr Leu Asn Trp Phe Phe Gln Arg Pro Gly Gln Ser  
35 40 45

Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro  
50 55 60

Asp Arg Phe Thr Gly Ser Gly Ser Gly Lys Asp Phe Thr Leu Lys Ile  
65 70 75 80

Ser Arg Val Glu Ala Glu Asp Leu Gly Leu Tyr Tyr Cys Val Gln Gly  
85 90 95

Tyr Thr Phe Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys  
100 105 110

Arg

<210> 117

<211> 420

<212> DNA

<213> mouse

<220>

<221> misc\_feature

<222> (37)..(37)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (40)..(40)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (414)..(414)

<223> any nucleotide

C1

<400> 117  
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gagtggatcg gaacgattga tctttctgat acttatactg gctacaatca aaacttcaag 240  
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ctgacatctg aggactctgc ggtctattac tgttcaagaa ggggctttga ctactggggg 360  
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<210> 118

<211> 113

<212> PRT

<213> mouse

<400> 118

Val Gln Leu Leu Glu Ser Gly Ala Glu Leu Val Met Pro Gly Ala Ser  
1 5 10 15

Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp His Trp  
20 25 30

Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile Gly  
35 40 45

Thr Ile Asp Leu Ser Asp Thr Tyr Thr Gly Tyr Asn Gln Asn Phe Lys  
50 55 60

Gly Arg Ala Thr Leu Thr Leu Asp Glu Ser Ser Asn Thr Ala Tyr Met  
65 70 75 80

Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys Ser  
85 90 95

Arg Arg Gly Phe Asp Tyr Trp Gly Gln Gly Thr Thr Leu Thr Val Ser  
100 105 110

Ser

<210> 119

<211> 280

<212> PRT

<213> mouse

<400> 119

Met Glu Val Gln Leu Gln Glu Ser Gly Pro Glu Leu Val Lys Pro Ser  
1 5 10 15

Gln Ser Leu Ser Leu Thr Cys Thr Val Thr Gly Asn Ser Ile Thr Ser  
20 25 30

Asp Tyr Ala Trp Thr Trp Ile Arg Gln Phe Pro Gly Asn Lys Leu Glu  
35 40 45

Trp Met Gly Tyr Ile Arg His Ile Tyr Gly Thr Arg Tyr Asn Pro Ser  
50 55 60

Leu Ile Ser Arg Ile Ser Ile Thr Arg Asp Thr Ser Lys Asn Gln Phe  
65 70 75 80

Phe Leu Gln Leu Asp Ser Val Thr Ala Glu Asp Thr Ala Thr Tyr Tyr  
85 90 95

Cys Val Arg Tyr His Tyr Tyr Gly Ser Ala Tyr Trp Gly Gln Gly Thr  
100 105 110

Leu Val Thr Val Ser Ala Gly Met Gln Ser Gly Gly Gly Gly Ser Gly  
115 120 125

Gly Gly Gly Ser Gly Gly Ala Met Asp Ile Val Met Thr Gln Asp Glu  
130 135 140

Leu Ser Asn Pro Val Thr Ser Gly Glu Ser Val Ser Ile Ser Cys Arg  
145 150 155 160

Ser Ser Arg Ser Leu Leu Tyr Arg Asp Gly Lys Thr Tyr Leu Asn Trp  
165 170 175

Phe Leu Gln Arg Pro Gly Arg Pro Pro Gln Leu Leu Ile Tyr Leu Met  
180 185 190

Ser Thr Arg Ser Ser Gly Val Ser Asp Arg Phe Ser Gly Ser Gly Ser  
195 200 205

Gly Thr Asp Phe Thr Leu Glu Ile Ser Arg Val Lys Ala Glu Asp Val  
210 215 220

Gly Val Tyr Tyr Cys Gln His Phe Val Asp Tyr Pro Phe Thr Phe Gly  
225 230 235 240

Ser Gly Thr Lys Leu Glu Ile Lys Arg Ala Asp Gly Ala Pro Thr Val  
245 250 255

Ser Ile Phe Phe Pro Pro Ser Leu Asp Tyr Lys Asp Asp Asp Asp Lys  
260 265 270



Leu Glu His His His His His His  
275 280

<210> 120

<211> 360

<212> DNA

<213> mouse

<400> 120

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tgtcgtctcaa gtactgggac tattacaagt gataactatg ccaactgggt ccaagaaaaa 120  
ccagatcatt tattcagtgg tctaataagggt gttaataatt accgacctcc aggtgttcct 180  
gccagattct caggctccct gactggagac aaggctgtcc tcaccatcac aggggcacag 240  
actgaggatg aggcaatata tttctgtgct ctatggtaca gcaaccactg ggtgttcggt 300  
ggaggaacca aactgactgt cctaggccag cccaagtctt cgccatcagt caccctgttt 360

<210> 121

<211> 109

<212> PRT

<213> mouse

<400> 121

Ala Val Val Thr Gln Glu Ser Ala Leu Thr Thr Ser Pro Gly Glu Thr  
1 5 10 15

Val Thr Leu Thr Cys Arg Ser Ser Thr Gly Thr Ile Thr Ser Asp Asn  
20 25 30

Tyr Ala Asn Trp Val Gln Glu Lys Pro Asp His Leu Phe Ser Gly Leu  
35 40 45

Ile Gly Val Asn Asn Tyr Arg Pro Pro Gly Val Pro Ala Arg Phe Ser  
50 55 60

Gly Ser Leu Thr Gly Asp Lys Ala Val Leu Thr Ile Thr Gly Ala Gln

65

70

75

80

Thr Glu Asp Glu Ala Ile Tyr Phe Cys Ala Leu Trp Tyr Ser Asn His  
85 90 95

Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly  
100 105

C1